

## AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently amended) A computer system for determining a location of a target sequence in a genome sequence, comprising:

- a storage unit for storing a crosslink map, wherein the crosslink map comprises records of sequence information for a plurality of versions of a genome sequence;
- an information search unit, for searching for identifier information and sequence information corresponding to a target sequence among the records in the crosslink map; and
- a location estimation unit, for
  - determining a reference group comprising ~~a~~-reference sequence information for an organism, wherein the reference sequence information is represented in the crosslink map by more than a predetermined number of records;
  - calculating a difference value of a start position and an end position of the reference sequence information obtained from the crosslink map; and
  - determining a location of the target sequence in the genome sequence by a location shift corresponding to the difference value by assigning a priority order to the difference value for the reference sequence information based on number of records for the reference sequence information in the crosslink map;

~~wherein a record for a sequence information in the crosslink map comprises~~

- ~~a name of a genome sequence;~~
- ~~a version of the genome sequence;~~
- ~~an identifier of a sequence information in the genome sequence;~~
- ~~a start position and an end position of the sequence information in the genome sequence;~~

~~and~~

- ~~a length of the sequence information in the genome sequence..~~

2. (Currently amended)      The computer system of claim 1, further comprising an information integration unit, for receiving genome sequence data from various sources and transforming the received data into data formats recognized by the crosslink map.

3. -4. (Cancelled)

5. (Currently amended)      The computer system of claim 1, wherein the location estimation unit comprises:

an estimation region setting portion for calculating a difference value of a start position and an end position of sequence information in the crosslink map excluded from the reference group and setting an estimation region for the location of the target sequence in the genome sequence based on the calculated difference value for sequence information; and

a location determining portion for determining the location of the target sequence in the estimation region of the genome sequence by a location shift corresponding to the difference value for the reference sequence information.

6. (Currently amended)      The computer system of claim 1, wherein the location estimation unit further comprises

an updating portion for updating the reference group, calculating a difference value of a start position and an end position for each sequence information in the updated reference group, and selecting sequence information in which the calculated difference value is within a predetermined range.

7. (Currently amended)      A method of determining a location of a target sequence in a genome sequence, wherein the method is executed on a specifically programmed computer, the method comprising:

inputting a target sequence;

searching for identifier information and sequence information corresponding to the target sequence in a crosslink map,

wherein the crosslink map comprises records of sequence information for a plurality of versions of a genome sequence;

determining a reference group comprising a reference sequence information for an organism, wherein the reference sequence information is represented in the crosslink map by more than a predetermined number of records;

calculating a difference value of a start position and an end position of the reference sequence information obtained from the crosslink map;

determining a location of the target sequence in the genome sequence by a location shift corresponding to the difference value by assigning a priority order to the difference value calculated for the reference sequence information based on number of records for the reference sequence information in the crosslink map; and

outputting the location of the target sequence in the genome sequence to a user;

~~wherein a record for a sequence information recorded in the crosslink map comprises a name of a genome sequence;~~

~~a version of the genome sequence;~~

~~an identifier for a sequence information in the genome sequence;~~

~~a start position and an end position of the sequence information in the genome sequence;~~

and

~~a length of the sequence information in the genome sequence..~~

8. – 9. (Cancelled)

10. (Previously presented) The method of claim 7, further comprising  
updating the reference group;  
calculating a difference value of a start position and an end position for each sequence  
information in the updated reference group; and  
selecting sequence information in which the calculated difference value is within a  
predetermined range.

11. (Previously presented) The method of claim 7, wherein determining the location of  
the target genetic information comprises:  
calculating a difference value of a start position and an end position of a sequence  
information obtained from the crosslink map, wherein the sequence information was excluded  
from the reference group;  
setting an estimation region for the location of the target sequence on the genome  
sequence based on the calculated difference value for the sequence information; and  
determining the location of the target sequence in the estimation region of the genome  
sequence by a location shift corresponding to the difference value for the reference sequence  
information.

12. (Currently amended) A computer readable medium having embodied thereon a computer program comprising computer readable code for executing a method, the method comprising

- inputting a target sequence;
- searching for identifier information and sequence information corresponding to the target sequence in a crosslink map,
- wherein the crosslink map comprises records for a plurality of versions of a genome sequence;
- determining a reference group comprising a reference sequence information for an organism, wherein the reference sequence information is represented in the crosslink map by more than a predetermined number of records;
- calculating a difference value of a start position and an end position of the reference sequence information obtained from the crosslink map;
- determining a location of the target sequence in the genome sequence by a location shift corresponding to the difference value by assigning a priority order to the difference value calculated for the reference sequence information based on number of records for the reference sequence information in the crosslink map; and
- outputting the location of the target sequence in the genome sequence to a user; and
- wherein the computer readable medium is not a carrier wave;
- ~~wherein a record for a sequence information recorded in the crosslink map comprises~~
- ~~a name of a genome sequence;~~
- ~~a version of the genome sequence;~~
- ~~an identifier for a sequence information in the genome sequence;~~
- ~~a start position and an end position of the sequence information in the genome sequence;~~

and

- ~~a length of the sequence information in the genome sequence..~~

13. – 14. (Cancelled)

15. (Currently amended)      The computer system of claim 1, further comprising  
an output unit, for outputting the location of the target sequence in the genome sequence  
to a user.